

**Claims**

We claim:

- 5                    1.        A device for assessing the relative strength and degree of anisotropy of a  
tissue sample comprising:
- a substantially circular pressure port in fluid communication with a pressurization source;
- a cavity for housing and securing at least a portion of the tissue sample in communication  
with the pressure port such that the pressure from the pressurization source causes the portion of  
10    the tissue sample in fluid communication with the pressure port to inflate forming a dome of  
tissue having a height axis substantially perpendicular to the tissue sample secured within the  
cavity, wherein the height of the dome of tissue along the height axis is generally proportional to  
the strength of the tissue sample;
- a source of illumination projecting collimated light rays in the direction of the dome of  
15    tissue illuminating the dome of tissue and creating a Moiré fringe pattern; and
- a viewing port arranged substantially directly above the dome of tissue, wherein the  
Moiré fringe pattern on the illuminated dome of tissue may be viewed and used to determine the  
degree of anisotropy of the tissue sample.